Remarks

This reply is in response to the Notice of Non-Compliant Amendment dated July 27, 2007. The amendments and remarks are restated here as they made in the responses of October 6, 2006 and March 22, 2007, and are repeated here only to provide a complete response to the Office Action of June 6, 2006, which was timely filed on October 6, 2006, with a request for a 1 month extension, in one document for the Examiner's convenience.

Claims 1, 4, 7, 35, 72 and 73 have been amended. Claims 58-60, 68-71, and 81-97 were previously cancelled. Currently, claims 1-57, 61-67, 72-80, and 98-117 are pending and under examination.

Rejections under 35 U.S.C. 101

The Examiner has rejected certain claims under 35 U.S.C. 101 as reading on products of nature. The Examiner has suggested amending the claims to specify "isolated." As such, applicants have amended independent claims (claims 1, 4 and 7) to include the word "isolated." Applicants submit that the present claim amendments render this ground of rejection moot. Accordingly, applicants respectfully request withdrawal of this ground of rejection.

Rejections under 35 U.S.C. 112, second paragraph

The Examiner has rejected claims 72 and 73 under 35 U.S.C. 112, second paragraph. Claims 72 and 73 have been amended to correct the antecedent basis issue by depending from claim 49. Applicants submit that the present claim amendments render this ground of rejection moot. Accordingly, applicants respectfully request withdrawal of this ground of rejection.

Rejections under 35 U.S.C. 112, first paragraph (written description)

The Examiner has rejected claims 1-34, 49-57, 61-67, 74-80 and 98-141 under 35 U.S.C. 112, first paragraph (written description). The Examiner has alleged that there is no support for the amendment of the claims to human antibodies. The Examiner further asserts that the specification does not "adequately describe the claimed genus of antibody multimers which include any antibody which binds to the described sequence motif." Applicants respectfully disagree. First, one skilled in the art would appreciate that deriving antibodies from a phage display of human antibody sequences provides human antibodies. Second, applicants have shown that Y1 and Y17 also bind to human platelets and leukemia cells. The Y1 antibody is fully described as SEQ ID NO: 25 and the Y17 antibody as SEQ ID NO:203. The CDR3 regions are SEQ ID NO:8 and SEQ ID NO:20 for the Y1 and the Y17 antibodies, respectfully. In addition to the Y1 and Y17 antibodies, the specification teaches additional human antibodies that bind the various epitopes recited in the claims (see paragraphs [177] and [179-186] of the originally filed specification). For example, the specification discusses antibodies having a CDR3 region of SEQ ID NO:8-24. The specification further defines these antibodies as having CDR2 and CRD1 regions of SEQ ID NO: 30-113, preferably, SEQ ID NO: 115 and SEQ ID NO: 114, respectively. Further, the specification describes preferred flanking regions between the CDR 1, 2 and 3 regions. For instance, the upstream and downstream flanking region of CDR 3 is SEQ ID NO: 117 and 116, respectfully. The upstream and downstream flanking region of CDR 2 is SEQ ID NO: 119 and 118, respectfully. The upstream and downstream flanking region of CDR 1 is SEQ ID NO: 121 and 120, respectfully. See paragraph [184]. Thus the specification described many antibodies other than the Y1 and the Y17 antibodies.

Finally, the epitopes to which the antibodies bind are fully described. Although, the claims contain an epitope motif that has variations, the specification teaches that antibodies of the present invention bind various epitopes that fall within this motif. Thus, applicants respectfully assert that the motif is clearly described and as such applicants are entitled to claim antibodies that bind to the motif, especially in light of the specification providing numerous antibodies (including Y1 and Y17) that bind to the motif. Further, the specification

teaches how the antibodies, including Y1 and Y17 were generated. Accordingly, applicants respectfully submit that the specification clearly indicates that they were in possession of the claimed genus of human antibody multimers. Applicants respectfully request withdrawal of this ground of rejection.

The Examiner has also rejected claim 45 under 35 U.S.C. 112, first paragraph (written description), stating that the amended sequence was not present in the originally filed disclosure. Applicants respectfully disagree. The epitope described in claim 45 was part of the original disclosure. See paragraph 251. The previous claim amendments was lodged to correct a typographical error in the originally filed claim 45. The correct sequence, which is now reflected in amended claim 45, was provided in the original specification at paragraph 251. Accordingly, Applicants respectfully request withdrawal of this ground of rejection.

Claim rejections under 35 U.S.C. §102(b)

The Examiner has rejected claims 35, 36, 38-44 and 46-48 as being anticipated by Ward et al. and claims 35, 36, 38-44, 46-48, 37, 45, 72 and 73 as being anticipated by Snapp et al. Applicants submit that the presently amended claims render this ground of rejection moot. The claims have been amended to indicate that the claimed antibody multimers are not multimers of SZ2 (Ward et al.) and KPL-1 (Snapp et al.). Support for this amendment is found throughout the specification where Y1 is compared to SZ2 and KPL-1. The specification shows that although some cells and epitopes are bound by both Y1 and SZ2 and KPL-1, Y1 and the claimed antibody multimers are clearly different than SZ2 and KPL-1 as they also bind different cells and different epitopes. For example, paragraph [267] states that "[i]n contrast to SZ2, Y1 binds not only to GP1b, but also to plasma proteins and to myeloid derived cells." Paragraph [276] indicates that KPL1 does not recognize glycocalicin, and the specification earlier noted that Y1 does recognize glycocalicin if Tyr-276 is sulfated. Further, paragraph [279] states "[a]nalysis of binding of scFv Y1 antibodies and anti-CD162 antibodies [e.g. KPL-1] to diseased cells also illustrates that scFv Y1 has binding characteristics different from those of anti-CD162 antibodies." Applicants submit that Ward

et al. or nor Snapp et al. teach or suggest the presently claimed antibodies. Accordingly, applicants respectfully request withdrawal of this ground of rejection.

The Examiner has rejected claims 18-20, 22-25, 27-28, 31-51, 156 and 165-171 as being anticipated by Suiko (U.S. 5,716,836). Applicants respectfully disagree. The antibody disclosed in Suiko (MSY-2) is "specific for sulfated tyrosine." See Col. 3, lines 55-56. One skilled in the art would appreciate that the use of "specific" in the antibody context means that the antibody binds only to the one epitope. Thus, MSY-2 only binds sulfated tyrosine and thus does not bind or recognize other epitopes. Further, the method of making the antibody provides support that it only binds one epitope. The MSY-2 antibody was prepared by immunizing an animal with sulfated tyrosine as the antigen and then purifying the antibodies produced by the animal by separating out the antibodies that bound unsulfated tyrosine and sulfated tyrosine. See col. 43-54. Further, there is nothing in this patent that teaches or suggests that MSY-2 is capable of binding other epitopes. In fact, the very description of the antibody as being "specific for sulfated tyrosine" clearly indicates that MY-2 is not capable of binding other epitopes. The fact that antibody was prepared by immunizing an animal with sulfated tyrosine also indicates that the MSY-2 antibody only binds tyrosine. In contrast to MSY-2, the claimed antibodies bind multiple epitopes and thus it is clear that MSY-2 is not the claimed antibody nor does the Suiko reference suggest the claimed antibodies. Accordingly, applicants respectfully request withdrawal of this ground of rejection.

The Examiner has rejected claims 18-20, 23-25, 27-28, 31-51, 156 and 165-171 as being anticipated by Arvieux et al. Applicants respectfully disagree. The Examiner has assumed that the antibodies obtained from patients must be the same as the claimed antibodies because both the claimed antibodies and the antibodies discussed in Arvieux have cross-reactivity between GP1b-α and CC4. Applicants respectfully submit that the Examiner has mistakenly characterized the Arvieux antibodies. There is no discussion of the Arvieux antibodies binding to GP1b-α or CC4. Rather, Arvieux indicates that the patient's antibodies bind cardiolipin in the presence of β2GP1. See page 4250, col. 1. The antibodies do not even bind β2GP1 directly. See paragraph spanning the end of page 4253 to 4253. Further,

and perhaps most notably, there is no teaching or suggestion that the Arvieux antibodies even bind GP1b-α. GP1b-α is not β2GP1. In fact, as the pending application notes, the GP1b protein is made up of a GP1bα subunit and a GP1b-β subunit connected through a disulfide bridge.

Provisional double patenting rejection

The Examiner has rejected certain claims for obvious-type double patenting over co-pending application 10/029,988, 10/032,423 and 10/029,926. Since no patent has issued at this time, applicants submit that this ground of rejection is still provisional. Applicants will submit a terminal disclaimer, however, if necessary when the two applications are deemed allowable.

Conclusion

If, in the opinion of the Examiner, a telephone conference would expedite prosecution of the subject application, the Examiner is invited to call the undersigned attorney.

The Office is authorized to charge any fees that may be necessary for consideration of this paper to Kenyon & Kenyon Deposit Account No. 11-0600.

Respectfully submitted,
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